

**ADVISORY REPORT
REGARDING THE
SAFEGUARDING,
DIGITIZING AND DIGITAL
ACCESSIBILITY OF THE
(HISTORICAL) ARCHIVAL
MATERIALS OF
ST. MAARTEN**

A report performed by
the section Archive
Preservation and
Management of the
National Archives of
Aruba (ANA) on request
of the Government of
St. Maarten



Aruba/St. Maarten, 2022



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Foreword

On behalf of the National Archives of Aruba, as director I would like to thank first the Government of St. Maarten, the Department of Communication (DCOMM) and the Department of Records & Information Management (DRIM) for confidence placed in our institution for realizing this report for our sister institutions. We are extremely honored to have the opportunity given to us, to share information about our digitization strategy and digital project execution at the National Archives of Aruba.

Secondly on behalf of Mr. Melvin Kock, I would like to thank Mr. Maurice Lake of the DCOMM and Mrs. Ingrid Gumbs-Arrindel of the DRIM and their personnel for the warm reception upon his arrival in Sint Maarten and the assistance he received in preparing this document.

Also, I want to thank our Minister of Culture Mrs. Xiomara Maduro for giving us the opportunity to realize the request made upon our institution and by this emphasize our endeavors to increase cooperation between our institutions in this part of the Kingdom.

We acknowledge the fact, that as small island states, we have common problems and limitations (lack of equipment, personnel and funding) regarding the new digital era. But with the necessary creativity and cooperation, we can work towards practical solutions to be in the running and making information more accessible in this evolving technological world.

I want to thank also my colleagues of my staff, Mr. Melvin Kock, Mr. Edric Croes, Mrs. Shakira Croes and Mr. Johny van Eerden, for the compilation and correction of this report.

And finally, I wish to acknowledge the efforts of our friend, the late Mr. Alfonso Blijden for recommending the National Archives of Aruba for this job. This advisory report is our tribute to our great and dear friend Alfonso.

drs. Raymond Hernandez
Director Archivo Nacional Aruba

1. Introduction

The Department of Communication (DCOMM) and the Department of Records & Information Management (DRIM) of Sint Maarten extended an invitation to the National Archives of Aruba (ANA) to make an assessment and to give advice regarding the safeguarding and digitizing of video tapes and other historical materials.

The main reason for this request was the concern that both departments had with regards to safeguarding and accessibility of the historical audiovisual materials and the equipment needed to digitize documents, videos and pictures.

The DCOMM is responsible for the registration and for informing the Sint Maarten community of the latest government news. The DRIM, which is situated in the Central Government Building, is responsible for the efficient registration, archiving and maintaining the Sint Maarten government records accessible. The DRIM also keeps and preserves the Colonial Archives of Sint Maarten.

Both departments see the value in digitizing the historical materials that they safeguard, and ANA was asked to provide advice on possible ways to be able to realize this.

This invitation was made on the recommendation of the late Mr. Alfonso Blijden, who was aware of the work the ANA had been performing in this area for years, as a means of safeguarding historic audiovisual materials and the same time making them accessible to the public in general. Recently the ANA started to make the digitized materials belonging to the National Archives of Aruba (ANA) online available, using the *Internet Archive* platform (archive.org). The ANA uses this platform as a cost-effective way to make these materials available online.

The ANA accepted this invitation and delegated her employee Mr. Melvin Kock (Audiovisual & Digital Techniques Department) for this mission and therefore he visited St. Maarten from July 4th till July 8th, 2022.

In St. Maarten Mr. Kock was attended by the director of the Department of Communication (DCOMM), Mr. Maurice Lake and Mrs. Ingrid Gumbs-Arindel of the Department of Records & Information Management (DRIM).

2. Organizational challenges in SXM

One of the organizational challenges Sint Maarten has, is that there is no National Archive department which should be doing the digitizing of these materials for historical purposes.

The DCOMM has their audiovisual materials in fair and good condition and well organized. The department is well organized and have technical knowledge and qualified personnel to digitize the Audiovisual materials of Sint Maarten. The audiovisual materials that the department manages, includes: U-Matic tapes (± 150), VHS tapes (over thousand) and while in the DCOMM building there are also Mini DV tapes (around thousand).

The main challenges that both departments have:

- there is no specific job-description for the digitization task (function);
- there are no specifically designated staff for the task of digitization; and
- there is also a lack of the necessary specialized equipment for this task.

3. Advice to the Department of Communication:

Equipment needed for DCOMM to digitize U-matic, video, mini dv tapes and editing of digital images.

Recommended equipment's to digitize VHS and U-matic tapes at DCOMM:

- 1 or 2 Apple Mac Studio:
 - Processor: Apple M1 Max with 10-core CPU, 24-core GPU, 16-core Neural Engine;
 - 32GB unified memory RAM;
 - 1TB SSD storage or more.

Note: You will need keyboard, mouse and monitor because they are not included. The choice of monitor is up to DCOMM but try to get one that's 4k, any renowned brand is fine.

2 pc's will speed up the process.

- 1 VHS player any renowned brand (not a combo player)
- 1 DV – mini DV player (ANA has a Sony DSR-1600A)
- 1 U-matic player (ANA has a Sony BVU-950)

Note: the amount of U-Matic tapes are not a lot, an option is to get a model that is not that expensive (broadcaststore.com)

- 1 DVD player any renowned brand
- 1 Audio cassette player (any renowned brand)

Note: if the intention is to digitize audio cassette

- 1 Apple Thunderbolt to FireWire Adapter
- 1 Thunderbolt 3 (USB-C) to Thunderbolt 2 Adapter
- 1 FireWire 9-Pin to 4-Pin Cable
- 2 RCA cables (red - white – yellow)
- Programs: depending on what the person who does the digitizing likes or feels more comfortable using (Premier pro or Final cut Pro X).

Photographs

The program that ANA uses for watermarking digital images is Pixillion image converter but for windows PC IMBATCH¹ is a free software that can be used to edit pictures in bulk just like Pixillion.

Separate network and storage

For the organizational aspect it is highly recommend having a separate network and NAS² storage dedicated for the digitization tasks of DCOMM. This would give

¹ saved pre-sets we have “coded” to rename, convert or watermark photographs in bulk with the imbatach software can be requested from melvin.kock@aruba.gov.aw

² NAS – network attached storage servers

DCOMM more flexibility and greater speed and full control of the digitization operations.

Full time designated employee at DCOMM

For the digitization task it is highly recommendable having a person dedicated to this task as a full-time job. Digitizing magnetic tapes takes time. The process of retrieving the tape, digitization, describing the content and uploading the digital file to archive.org platform takes for each minute of analog tape, on average 6 minutes of work.

4. Advice for the Department Records & Information Management

Equipment needed for the department to digitize the historical documents

- 1 Document scanner
Note: ANA uses a Canon DR-9080C, but it's discontinued by Canon. There are various new models to choose from on the Canon website.
- 1 Photo and negative scanner
Note: ANA uses Epson Expression 10000 XL, but it's discontinued by Epson, the newest model is Epson Expression 12000 XL photo scanner.
- 1 Archive scanner
Note: ANA uses Zeutschel OS 14000 A1 LS, but it's discontinued by Zeutschel, the new model is Zeutschel Archive scanner OS Q1 A1+
- 3 Powerful PC/workstation that can stay fast for years to come, one PC for each scanner (Recommend is that the pc to be with intel core i9-12900K processor or similar, minimum 32 GB RAM.)

Separate network and storage

For the organizational aspect it is recommend having a separate network and NAS storage designated for the digitization tasks of Records & Information Management dept. This would give DRIM more flexibility, greater speed and full control of the digitization operations.

Full time employee(s) at the DRIM

For the digitization task we would highly recommend having 1 person or more person dedicated to this task as a fulltime job.

5. The determination and implementation of standards

As stated in the introduction, the request from our sister institutions in St. Maarten, is due to their concern both departments have regarding the safeguarding and accessibility of the historical audiovisual materials and the equipment needed to digitize documents, videos, pictures and other colonial archives.

In addition to the list that we have drawn up in paragraphs 3 and 4 as the basic needs for the two departments, it is important to also determine in advance, the standards that will be implemented, before starting with the digitization of the historical materials.

We propose that the following aspects be considered:

- File naming protocol
- Metadata for describing digital items
- PPI Capturing guideline matrix
- Digitized audio tape format
- Digitized video file format

File naming protocol

Descriptive file names are an important part of organizing, sharing, and keeping track of data files. Therefore, it is important to develop or implement a naming protocol based on elements that are important to the project.

To be able to identify each digitized item in the future it is important that the departments think on the name filing protocol. This will enable the departments to identify each item at their department and keep a link with the analog item in their archives.

The file naming protocol will be the guideline how the file naming system works for the different items and types of material that are being digitized. Plus, the file naming system should be both machine readable as human readable.

The file naming protocol should be part of the whole process. From the start of the digitizing process, when the item is digitized up until the items are made available through collection display platforms, websites, mail or other forms of (digital) publication (for example Facebook, Instagram etc.)

The ANA and the Biblioteca Nacional Aruba (BNA) use a file naming system that complies with international guidelines. Theses file naming systems have proven to be flexible enough to manipulate when unforeseen data structures arise.

By using file naming protocol (historical/digitized), information that are kept at the different departments can be linked together because of this system. Digital items/collections can be shared without losing the identity of the department that manage the record. A single digital item will be traceable to the dept/creator and placed in the context of the records that are directly related to it.

ANA uses the following naming protocol for the digitized items, for a document, photograph, video file or audio file. For the digitized items belonging to ANA, the "ANA-DIG" is used.

"ANA-DIG" as the department identifier and for the Biblioteca Nacional Aruba (National Library of Aruba) "BNA-DIG" is the department identifier.

For instance, a digital file named "ANA-DIG- BUVO-AVU-0397" means:

ANA-DIG- BUVO-AVU-0397

ANA= Archivo Nacional Aruba

DIG= digital

BUVO= Bureau Voorlichting Aruba (equivalent dept. as DCOMM)

AVU= AV stands for audiovisual and U= stands for U-matic tape

0397= tape number 0397

An option for DCOMM could be to use the following name giving protocol:

DCOMM-DIG-AV**U**-0001 for **U**matic tape number 1

DCOMM-DIG-AV**V**-0001 for a **v**ideo tape number 1

DCOMM-DIG-AV**D**-0001 for **D**VD number 1

DCOMM-DIG-**PH**-1989-0001 For an analog **ph**oto that has been digitized and that had been taken in the year 1989. (Optional is to add a month and day in the filename for instance 19891111 (11 November 1989)

DCOMM-DIG-**NEG**-1989-0001 For an analog **N**egative that has been digitized and that had been taken in the year 1989. (optional is to add a month and day in the filename for instance 19891111 (11 November 1989)

DCOMM-DIG-**IMG**-20211111-001 for digital **image** number 1 taken on 11th of November 2021

DRIM could use their acronym in the same way (for instance):

DRIM-DIG-COL-001-0001

DRIM = Department of Records & Information Management

DIG = Digital

COL= Colonial archive

001= could be inventory number or folder (omslag/deel/map)

0001 = digitize item number 1 in folder number 1.

"DRIM-DIG-COL-001-0001" is digital file number 1 of folder number of the colonial archives which has been digitized/ is being kept by the department of Records & Information Management.

DRIM-DIG-COL = root folder name

DRIM-DIG-COL-001 = is the folder name

DRIM-DIG-001-0001= is the file name

In attachment **A** we have incorporated a schematic of the folder structure and the file naming system for the colonial archive of Aruba that we use.

Metadata for describing digital items

Metadata is the backbone of a digital collection. We would advise to do in depth research about this.

A good starting point would be to read about the Dublin Core (DC) metadata initiative. https://en.wikipedia.org/wiki/Dublin_Core

Metadata are of utmost importance to describe digitized records. We advise to read about this prior to starting to digitize audiovisual, photographs and archival documents.

Internet archive (archive.org) uses a derivate version of DC scheme for batch uploading digital items on their platform.

The metadata templates that the ANA uses to describe digital records, and which can be used to batch upload digital items (archives, photographs, video) on our archive.org platform, can be provided to DCOMM and/or DRIM if requested.³

³ melvin.kock@aruba.gov.aw

PPI Capturing guideline matrix

To make sure the capturing settings of the equipment are up to par, ANA and BNA has created a document which can be used as a guideline to determine the PPI/DPI resolution needed for each analog document format, if preservation or a master copy is necessary. Be it a photograph, video, archival document, negative or slide. This guideline was created together with the data specialist of the National Library of Aruba Mr. Peter Scholing. By insuring the minimal PPI for each format, we can assure that the captured digital image is of high quality. (4K HD)

The captured digital file should be saved as an uncompressed .tif file, so not to lose any of the details/pixels. Lossy compressions file types should be avoided when saving files with the purpose of preservation. Digital derives could be made in lossy file extensions like .jpg for posting images online or for sending via mail.

In attachment **B** we have incorporated the scheme used by the ANA.

Digitized audio tape format

The golden standard for digitized audio cassette tapes would be to store them as an uncompressed .wav format

<https://www.archives.gov/records-mgmt/initiatives/dav-faq.html>

Digitized video file format

Ideally video tapes that are digitized with the purpose of preservation should be saved in an uncompressed format be it a .AVI or a .MOV file extension. However, each minute of digitized video saved in an uncompressed file format extension would be around 1 GB per minute. The amount of storage required for the thousands of video tapes stored here at the ANA (and most other institutions) would be extremely high and is too expensive.

Another option would be to use a lossless file format extension, but the number of files / quantity of videos that DCOMM and Dept. of Records & Information management has, might still be too expensive (which is the case for the ANA). However, since the quality of analog materials deteriorates over time, ANA digitize the videos and save them in a lossy format (.mp4/h.264) to ensure that the information is preserved. The only exception is for those videotapes that are determined as having a significant historical importance for Aruba. In that case the digitized video is saved in: ProRes 4:2:2.

<https://www.archives.gov/preservation/formats/video-future-usability.html>

6. Some considerations to take into account when making digital content online accessible

Copyright aspect and Creative Commons licenses

Copyright considerations should be considered when publishing digital materials online, and the intellectual property laws of Sint Maarten should be consulted regarding this question.

Government produced video, photographs and other material are the property of the government⁴. The government could choose to make this material public or can choose to put restriction on its use.

Photographs and videos taken by others are copyright restricted in accordance with the law and when DCOMM for instance receives a picture or video from a third party it is highly advisable that a written consent should be signed between both parties before DCOMM publish such material.

When DCOMM or DRIM want to publish material online, for examples historical photo's or video belonging to the government of Sint Maarten, (that are still under copyright) it is advisable to license such material with the Creative Commons license which is deemed appropriate for that item.

Creative Commons licenses makes it possible for copyright holders to share digital items online while still maintaining -some- control over the digital item⁵. We from the national archive of Aruba choose to license third party digital material as [Creative Commons — Attribution-NonCommercial-NoDerivatives 4.0 International — CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/) ⁶

For the copyright materials that belong to the Aruban government we have -for now- chosen the same Creative Commons license.

⁴ It is highly advisable that copyrights agreements should be made with freelance photographers and videographers /marketing companies that works for the government or a minister. When signing such contract special attention should be given to the copyright's aspects in the service agreement. It is important that the copyrights of the created material will be the property of the government of Sint Maarten. Besides the copyright's aspects, arrangement should be made that these created materials will be trespassed on a regular basis to the Dept. of Records & Information management for proper archiving.

⁵ <https://creativecommons.org>

⁶ <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Special note: the ethical dilemma

There is however an ethical dilemma regarding this question to think about.

When a Government department creates or makes -digital- informational materials such as photographs, video, posters to inform the public, can the government put restriction on its use and re-use by the public, knowing that such materials were created with public funds?

Online accessibility of the digitized historical material

The ANA uses the Internet Archive (archive.org) to offer our digitized videos⁷, photographs⁸, audio files and (colonial⁹) historical archives accessible from anywhere in the world.

<https://digital.ana.aw>

The Internet Archive platform is free of charge for hosting one's archive and bandwidth use. There are no limits to the storage capacity and it gives the institution a high level of flexibility to upload files to their account.

Further archive.org ranks high on google search results so the digital material would be easily discovered.

Special note: scanned handwritten documents

As for scanned (historical) handwritten documents at the ANA, these are first scanned in the uncompressed Tiff format. They are then converted to JPEG and then uploaded to Transkribus.¹⁰ This application is used to create a machine-readable text layer. The regions which contain text, and the text lines are selected semi-automatically (depending on your criteria and the text format, handwriting, etc.). Transkribus has a variety of existing HTR (handwritten text recognition) models to choose from, which can be applied.

If there isn't one available for the writing style/language, you can transcribe texts and create your own model (this is time-consuming and requires more expertise). After the application of an HTR model the results are exported in PDF format with a text layer, making the handwritten text searchable.

The PDF documents get uploaded to the Internet Archive using the Command Line tool, where the metadata is read from a CSV file, making it possible to upload many files simultaneously. Users can then view the documents online from any device or download them freely.

Besides using Internet archive Sint Maarten could think about collaboration between our own institution (ANA) as well as other institutions. Some possibilities might be the dLoc (digital library of the Caribbean) or with the National Archives of the

⁷ <https://video.ana.aw>

⁸ <https://potret.ana.aw>

⁹ <https://colonial.ana.aw>

¹⁰ <https://readcoop.eu/transkribus/>

Netherlands (to host and keep a back-up of the colonial archives of Sint Maarten in their repository). The ANA is currently in contact with the National Archive in the Hague for a collaboration.

Sint Maarten could also contact institutions such as NIOD or *Beeld en Geluid* to help preserve their audiovisual materials. Currently the ANA is making their slavery registers available in collaboration with the Radboud University of Nijmegen and specifically dr. Coen van Galen. They are digitally linking all the separate registers of the former Dutch colonies together in a database. We recommend contacting them to enquire about possibilities to contribute to this project as well.

<https://www.ru.nl/hdsc/>

By participating in such cooperation's Sint Maarten could attract more attention/visibility with regard to its cultural heritage materials; and this increased attention can in turn be used to apply for international grants and subsidies which makes it possible to fund (different) digitization projects on Sint Maarten.

In Aruba, the ANA is working together with the national library, the BNA to create a platform called the *Coleccion Aruba* for the online display of national collection of cultural heritage materials of Aruba.¹¹ Two of our contributions to this project are the Handwritten Text Recognition of our colonial archive, a project largely funded via The Foundation Amigonan di Archivo – ADA - (Friends of the Archive Foundation) and external subsidies, and the analog audiovisual (videos/images) materials which have been converted to digital copies. The contributors are also participating in online courses offered by Dutch (cultural heritage) organizations for the Dutch Caribbean (DEN¹², NDE¹³).

Furthermore, the National Archive of Aruba recently organized a 'week of the Archive' where we launched a campaign (called 3C), in cooperation with the Ministry of Culture, inviting the general public to hand in any materials they might have which have historical value. For the conclusion of this week, ANA also organized a seminar in cooperation with GO-opleidingen, and professionals from Bonaire (Openbaar Lichaam Bonaire) about digital accessibility for (Government) professionals.

¹¹ <https://archive.org/details/aruba>

¹² <https://www.den.nl/actueel/artikelen/1524/het-roer-is-om-digitale-transformatie-in-het-caribisch-deel-van-het-koninkrijk>

¹³ <https://netwerkdigitaalervoed.nl>

Special note: Amigonan di Archivo (ADA)

In 2005 the foundation "Amigonan di Archivo"¹⁴ (Friends of the Archive) was established in Aruba to support and help the national archives of Aruba. During its 17 years of existence many projects were executed and made possible with funds received from local cultural funds and more so from Dutch cultural funds (There are more funds like V-fonds, and occasionally Dutch ministries of VWS and OCW makes funds available for special projects)

The *Mondriaan fonds*¹⁵ and *Cultuur participatie fonds*¹⁶ are two of such examples which contributed considerable sums for organizations in the Dutch Caribbean. ADA is highly successful in applying for funds from these institutions and with these funds it helps the national archive of Aruba execute projects which ANA would normally be unable to fund. Another example is the 'Prince Bernard culture fund *Caribisch gebied*'¹⁷ which has helped to subsidize entire (or partial) projects that ANA has executed on Aruba.

¹⁴ <https://www.oorlogsbronnen.nl/thema/Fundacion%20Amigonan%20Di%20Archivo>

¹⁵ <https://www.mondriaanfonds.nl/en/homepage-2/>

¹⁶ <https://cultuurparticipatie.nl/about-the-fund>

¹⁷ <https://pbccaribbean.com/>

7. Conclusion

Many of the problems that Sint Maarten encounters are similar to the ones at the National Archive of Aruba, as well as other (small island) organizations are faced with. A lack of funds and the difficulty in finding and acquiring (knowledgeable) people to carry out digitization projects are two of such examples.

As all ready stated in our foreword, the ANA acknowledge the fact, that as small island states, we have common problems and limitations. But with the necessary creativity and cooperation, we can work towards practical solutions to be in the running and making information more accessible in this evolving technological world.

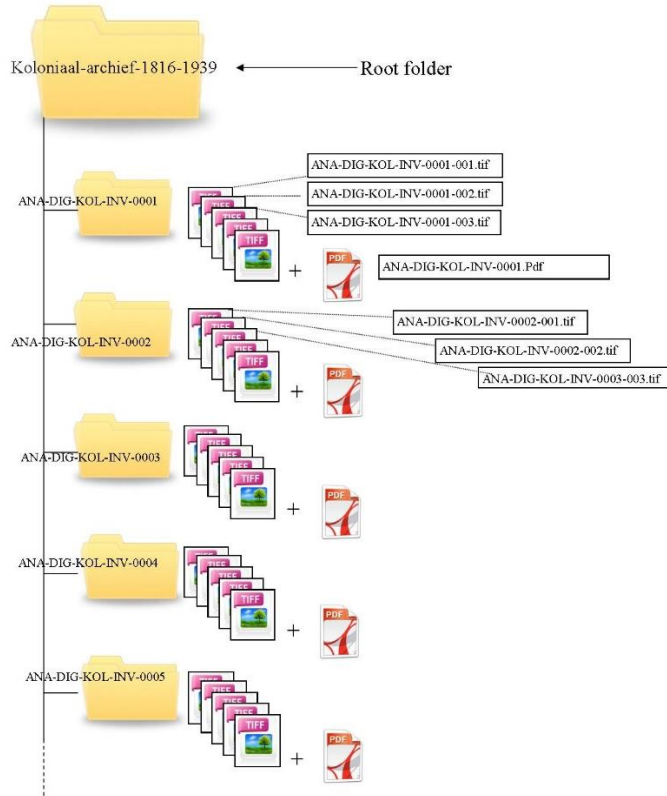
The takeaway message is therefore to determine what might work well for your organization; think-outside-the-box, find solutions in cooperation with others to ensure the preservation of historical materials and increasing your digital presence.

Like the great French writer and playwright once said: "The greater the obstacle, the more glory in overcoming it." Since the institution of the National Archives of Aruba in 1994, this life quote of Molière (1622 – 1673) was our lead in the past 3 decades. And still, as a small institution on a small island state, we practice this way of thinking, and we also have many obstacles. The keyword is also "cooperation". Internally, between our own institutions of our community, but also with other sister institutions within our own region and if necessary outside it.

Therefore, the National Archive of Aruba is always available for further knowledge exchange and/or assistance in any way to ensure that the historical materials stored in Sint Maarten are made (easily) accessible and preserved for future generations. Of course, ANA could benefit from a further knowledge exchange to tackle (possible/probable) difficulties together.

Attachment A

Koloniaal archief (1816-1939 (1945) mappen structuur



Scan Specs: Kolonial Archief

ppi:	300
Bitdepth:	24
Gamut:	Adobe(1998)
Scan type:	Spread (opening)*
Bestandtype:	Tiff
Binder:	Pdf/a
± 60 mb per image	

*In beginsel wordt er per *spread* (opening) gedigitaliseerd omdat dat de fysieke verschijningsvorm het beste weergeeft (zie hiervoor de richtlijnen *Preservation imaging Metamorfoze*, p. 34)

Attachment B

analog format	breedte (cm)	hoogte (cm)	cm2	ppi	total pixels at ppi	megapixels
A1	59,4	84,1	4995,54	300	69687922	69,7
A2	42	59,4	2494,8	300	34802530	34,8
A3	29,7	42	1247,4	300	17401265	17,4
11"x14" photo	27,94	35,56	993,55	300	13860000	13,9
A4	21	29,7	623,7	300	8700632	8,7
20x30cm photo	20	30	600	300	8370017	8,4
Letter size	21,59	25,4	548,39	600	30600000	30,6
8"x10" photo	20,32	25,4	516,13	600	28800000	28,8
18x25cm photo	18	25	450	600	25110050	25,1
A5	14,81	21,01	311,06	600	17357076	17,4
13x18cm photo	13	18	234	600	13057226	13,1
5"x7" photo	12,7	17,78	225,81	600	12600000	12,6
A6	10,49	14,81	155,34	600	8668044	8,7
10x15cm photo	10	15	150	1200	33480067	33,5
4"x5" photo	10,16	12,7	129,03	1200	28800000	28,8
4"x5" negative	10,16	12,7	129,03	2400	1,15E+08	115,2
9x13cm photo	9	13	117	1200	26114452	26,1
2.5"x2.5" negative	6,35	6,35	40,32	2400	36000000	36
Slide/35mm negative	2,4	3,6	8,64	2400	7713807	7,7

NB:

* 4K UHD is a resolution of 3840 pixels × 2160 lines = 8.3 megapixels

* Full HD Full HD: 1080p image resolution of 1,920 x 1,080 pixels = 2,07 megapixels